

emergency situation as set forth in § 121.557.

(b) If any instrument or item of equipment required under this chapter for the particular operation becomes inoperative en route, the pilot in command shall comply with the approved procedures for such an occurrence as specified in the certificate holder's manual.

[Doc. No. 6258, 29 FR 1922, Dec. 31, 1964, as amended by Amdt. 121-222, 56 FR 12310, Mar. 22, 1991; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.628 Inoperable instruments and equipment.

(a) No person may take off an airplane with inoperable instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that airplane.

(2) The certificate-holding district office has issued the certificate holder operations specifications authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Administrator in the certificate holder's operations specifications. An approved Minimum Equipment List, as authorized by the operations specifications, constitutes an approved change to the type design without requiring recertification.

(3) The approved Minimum Equipment List must:

(i) Be prepared in accordance with the limitations specified in paragraph (b) of this section.

(ii) Provide for the operation of the airplane with certain instruments and equipment in an inoperable condition.

(4) Records identifying the inoperable instruments and equipment and the information required by paragraph (a)(3)(ii) of this section must be available to the pilot.

(5) The airplane is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the operations specifications authorizing use of the Minimum Equipment List.

(b) The following instruments and equipment may not be included in the Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the airplane is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) Notwithstanding paragraphs (b)(1) and (b)(3) of this section, an airplane with inoperable instruments or equipment may be operated under a special flight permit under §§ 21.197 and 21.199 of this chapter.

[Doc. No. 25780, 56 FR 12310, Mar. 22, 1991; Amdt. 121-222, 56 FR 14290, Apr. 8, 1991; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.629 Operation in icing conditions.

(a) No person may dispatch or release an aircraft, continue to operate an aircraft en route, or land an aircraft when in the opinion of the pilot in command or aircraft dispatcher (domestic and flag operations only), icing conditions are expected or met that might adversely affect the safety of the flight.

(b) No person may take off an aircraft when frost, ice, or snow is adhering to the wings, control surfaces, propellers, engine inlets, or other critical surfaces of the aircraft or when the takeoff would not be in compliance with paragraph (c) of this section. Takeoffs with frost under the wing in the area of the fuel tanks may be authorized by the Administrator.

(c) Except as provided in paragraph (d) of this section, no person may dispatch, release, or take off an aircraft any time conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft, unless the certificate holder has an approved ground deicing/anti-icing program in its operations specifications and unless the dispatch, release, and takeoff comply with that program. The

approved ground deicing/anti-icing program must include at least the following items:

- (1) A detailed description of—
 - (i) How the certificate holder determines that conditions are such that frost, ice, or snow may reasonably be expected to adhere to the aircraft and that ground deicing/anti-icing operational procedures must be in effect;
 - (ii) Who is responsible for deciding that ground deicing/anti-icing operational procedures must be in effect;
 - (iii) The procedures for implementing ground deicing/anti-icing operational procedures;
 - (iv) The specific duties and responsibilities of each operational position or group responsible for getting the aircraft safely airborne while ground deicing/anti-icing operational procedures are in effect.
- (2) Initial and annual recurrent ground training and testing for flight crewmembers and qualification for all other affected personnel (e.g., aircraft dispatchers, ground crews, contract personnel) concerning the specific requirements of the approved program and each person's responsibilities and duties under the approved program, specifically covering the following areas:
 - (i) The use of holdover times.
 - (ii) Aircraft deicing/anti-icing procedures, including inspection and check procedures and responsibilities.
 - (iii) Communications procedures.
 - (iv) Aircraft surface contamination (i.e., adherence of frost, ice, or snow) and critical area identification, and how contamination adversely affects aircraft performance and flight characteristics.
 - (v) Types and characteristics of deicing/anti-icing fluids.
 - (vi) Cold weather preflight inspection procedures;
 - (vii) Techniques for recognizing contamination on the aircraft.
- (3) The certificate holder's holdover timetables and the procedures for the use of these tables by the certificate holder's personnel. Holdover time is the estimated time deicing/anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft. Holdover time begins when

the final application of deicing/anti-icing fluid commences and expires when the deicing/anti-icing fluid applied to the aircraft loses its effectiveness. The holdover times must be supported by data acceptable to the Administrator. The certificate holder's program must include procedures for flight crewmembers to increase or decrease the determined holdover time in changing conditions. The program must provide that takeoff after exceeding any maximum holdover time in the certificate holder's holdover timetable is permitted only when at least one of the following conditions exists:

- (i) A pretakeoff contamination check, as defined in paragraph (c)(4) of this section, determines that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow.
- (ii) It is otherwise determined by an alternate procedure approved by the Administrator in accordance with the certificate holder's approved program that the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, or snow.
- (iii) The wings, control surfaces, and other critical surfaces are redeiced and a new holdover time is determined.
- (4) Aircraft deicing/anti-icing procedures and responsibilities, pretakeoff check procedures and responsibilities, and pretakeoff contamination check procedures and responsibilities. A pretakeoff check is a check of the aircraft's wings or representative aircraft surfaces for frost, ice, or snow within the aircraft's holdover time. A pretakeoff contamination check is a check to make sure the wings, control surfaces, and other critical surfaces, as defined in the certificate holder's program, are free of frost, ice, and snow. It must be conducted within five minutes prior to beginning take off. This check must be accomplished from outside the aircraft unless the program specifies otherwise.
- (d) A certificate holder may continue to operate under this section without a program as required in paragraph (c) of this section, if it includes in its operations specifications a requirement that, any time conditions are such that

frost, ice, or snow may reasonably be expected to adhere to the aircraft, no aircraft will take off unless it has been checked to ensure that the wings, control surfaces, and other critical surfaces are free of frost, ice, and snow. The check must occur within five minutes prior to beginning takeoff. This check must be accomplished from outside the aircraft.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-231, 57 FR 44942, Sept. 29, 1992; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.631 Original dispatch or flight release, redispach or amendment of dispatch or flight release.

(a) A certificate holder may specify any regular, provisional, or refueling airport, authorized for the type of aircraft, as a destination for the purpose of original dispatch or release.

(b) No person may allow a flight to continue to an airport to which it has been dispatched or released unless the weather conditions at an alternate airport that was specified in the dispatch or flight release are forecast to be at or above the alternate minimums specified in the operations specifications for that airport at the time the aircraft would arrive at the alternate airport. However, the dispatch or flight release may be amended en route to include any alternate airport that is within the fuel range of the aircraft as specified in §§ 121.639 through 121.647.

(c) No person may change an original destination or alternate airport that is specified in the original dispatch or flight release to another airport while the aircraft is en route unless the other airport is authorized for that type of aircraft and the appropriate requirements of §§ 121.593 through 121.661 and 121.173 are met at the time of redispach or amendment of the flight release.

(d) Each person who amends a dispatch or flight release en route shall record that amendment.

[Doc. No. 628, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-65, 35 FR 12709, Aug. 11, 1970]

§ 121.633 [Reserved]

§ 121.635 Dispatch to and from refueling or provisional airports: Domestic and flag operations.

No person may dispatch an airplane to or from a refueling or provisional airport except in accordance with the requirements of this part applicable to dispatch from regular airports and unless that airport meets the requirements of this part applicable to regular airports.

[Doc. No. 16383, 43 FR 22649, May 25, 1978]

§ 121.637 Takeoffs from unlisted and alternate airports: Domestic and flag operations.

(a) No pilot may takeoff an airplane from an airport that is not listed in the operations specifications unless—

(1) The airport and related facilities are adequate for the operation of the airplane;

(2) He can comply with the applicable airplane operating limitations;

(3) The airplane has been dispatched according to dispatching rules applicable to operation from an approved airport; and

(4) The weather conditions at that airport are equal to or better than the following:

(i) *Airports in the United States.* The weather minimums for takeoff prescribed in part 97 of this chapter; or where minimums are not prescribed for the airport, 800-2, 900-1½, or 1,000-1.

(ii) *Airports outside the United States.* The weather minimums for takeoff prescribed or approved by the government of the country in which the airport is located; or where minimums are not prescribed or approved for the airport, 800-2, 900-1½, or 1,000-1.

(b) No pilot may take off from an alternate airport unless the weather conditions are at least equal to the minimums prescribed in the certificate holder's operations specifications for alternate airports.

[Doc. No. 6258, 29 FR 19222, Dec. 31, 1964, as amended by Amdt. 121-33, 32 FR 13912, Oct. 6, 1967; Amdt. 121-253, 61 FR 2615, Jan. 26, 1996]

§ 121.639 Fuel supply: All domestic operations.

No person may dispatch or take off an airplane unless it has enough fuel—